

REMARKS

Claims 13, 14, 18, 19 and 22 are pending. By this Amendment, claims 15-17 are canceled without prejudice or disclaimer and claims 13 and 18 are amended. Reconsideration in view of the above amendments and following remarks is respectfully requested.

Claims 13, 14, 17, 19 and 22 were rejected under 35 U.S.C. § 103(a) over Tsai et al. (U.S. Patent 6,878,646) in view of Mori et al. (U.S. Patent Application Publication 2004/0038346 A1)) and Wolf ("Silicon Processing for the VLSI Era," Vol.1: Process Technology, pp. 194 and 542-551), and claims 15, 16 and 18 were rejected under 35 U.S.C. § 103(a) over Tsai et al., Mori et al., Wolf, and further in view of Bergman (U.S. Patent 5,332,445). The rejections are respectfully traversed.

Claim 13 has been amended to includes the features of canceled claims 15-17. Claim 13 recites a method of fabricating a submicron semiconductor device comprising, *inter alia*, forming a hard mask on the polysilicon layer, wherein said hard mask is a SiH<sub>4</sub> oxide deposited by means of PE-CVD. The combination of references fails to disclose or suggest, at least, this limitation, and thus fails to present a *prima facie* case of obviousness.

The Examiner alleges on page 4, lines 13-15, that Wolf et al. "teach forming the oxide layer by using silane (SiH<sub>4</sub> gas) and O<sub>2</sub> to form a silane-oxide layer by PECVD (see table 4, page 194 of Wolf)."

Wolf et al. do not disclose or suggest a hard mask which is a SiH<sub>4</sub> oxide deposited by PECVD, either in Table 4 or anywhere else. Wolf et al. disclose in Table 4 products of polysilicon, silicon nitride, SiO<sub>2</sub> and doped SiO<sub>2</sub>. Contrary to the Examiner's allegations, none of these "products" is a SiH<sub>4</sub> oxide layer, as recited in claim 13. As the combination of Tsai et al., Mori et al. and Wolf et al. fails to disclose or suggest all of the limitations of claim 13, the combination fails to present a *prima facie* case of obviousness. See MPEP § 2143.

With respect to the features of claims 15-17, which have been incorporated into claim 13, as disclosed, for example, in paragraph [0027] of the instant application, the hard mask pattern 21 is selectively removed using an HF gas, for example by gasifying a solution at the claimed 39%, whereas the polysilicon gate electrode and the gate oxide formed by thermal oxidation are protected from etching. Paragraph [0027], for example, also discusses the other limitations incorporated into claim 13.

Bergman, which was applied against claims 15 and 16 (and 18), discloses the use of HF gas to etch silicon dioxide (SiO<sub>2</sub>). See, for example, column 1, lines 20-22 and 40-44. Bergman does not disclose using HF gas to etch a hard mask formed as an SiH<sub>4</sub> oxide layer,

as recited in claim 13. Therefore, Bergman does not cure the deficiencies of the combination of Tsai et al., Mori et al. and Wolf et al.

Although Mori et al. disclose, in paragraph [0054] the use of an HF solution, the HF solution is used to selectively remove a hard mask of SiO type with respect to Si, not a SiH<sub>4</sub> oxide hard mask as recited in claim 13.

As discussed in the previous reply, it is further respectfully submitted that there is no motivation or suggestion to combine the references. Mori et al. are concerned only with the efficiency of etching a residual product resulting from etching the polysilicon layer by using HF solution. See, for example, paragraph [0054]. However, because the process of claim 13 also can etch the side of the gate oxide layer because of its isotropic property, it is important to protect the gate oxide layer during the etching of the residual product. As Mori et al. do not disclose or suggest such features, one of ordinary skill in the art would not have been motivated to combine Mori et al. with the other references cited by the Examiner to arrive at the invention of claim 13.

Applicants also respectfully reiterate their arguments with respect to the Examiner's reliance on In re Aller and the other boilerplate decisions cited. Should the Examiner continue to rely on these cases, the Examiner is respectfully requested to answer the substance of Applicants' arguments. See MPEP § 707.07(f).

Reconsideration and withdrawal of the rejections over Tsai et al., Mori et al., Wolf et al. and Bergman are respectfully requested.

In view of the above amendments and remarks, Applicants respectfully submit that all the claims are allowable and that the entire application is in condition for allowance.

Should the Examiner believe that anything further is desirable to place the application in better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

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Date: June 28, 2006

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